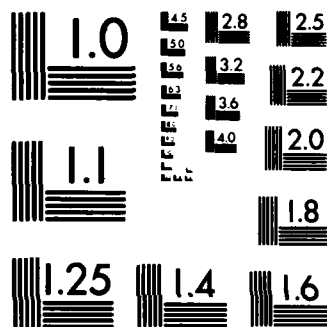END*

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ORGANIZATIONAL-CLIMATE DIMENSIONS:
A CONCEPTUAL AND JUDGMENTAL ANALYSIS

Grant E. Secrist, Lieutenant Colonel, USAF
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Identifying salient climate dimensions and determining their generality across a variety of organizational settings are important aspects of the study of organizational climate. The purpose of this study was to determine the conceptual similarity among a sample of organizational variables and to ascertain the adequacy of a new seven-dimension organizational-climate taxonomy to account for these variables. Twelve judges independently classified 105 organizational variables from 14 research investigations, using the new

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20. ABSTRACT (Continued)

-climate taxonomy. Nearly 70% of the 105 variables were classified within the framework of the climate taxonomy by a criterion of agreement of six or more judges. Complete classification agreement across all possible pairs of judges was found for nearly 50% of the 105 variables. On the average, 7 of the 12 judges agreed on the classification of the 105 organizational variables. These findings demonstrate that considerable conceptual similarity exists among the types of organizational variables found in a sample of the research literature and that the new taxonomy has sufficient utility to warrant further development.

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ORGANIZATIONAL-CLIMATE DIMENSIONS:
A CONCEPTUAL AND JUDGMENTAL ANALYSIS

INTRODUCTION

Organizational climate refers to the perceived milieu or atmosphere created within a work setting as a result of the combined interactive effects of leader behavior, management practices, job/task properties, and a wide variety of organizational and environmental factors. These conditions yield replicable dimensions of influence within organizations, which shape individual behavior.

A more complete definition of organizational climate can be found in Tagiuri (1968) and Pritchard and Karasick (1973). Their description, slightly modified, is outlined as follows:

Organizational climate is--

1. an enduring quality of an organization's internal environment distinguishing it from other organizations;

2. a consequence of the behavior, policies, and practices of the organization's members, primarily its management;

3. perceived and experienced with significant agreement by members of the organization;

4. a basis for interpreting the situation; and

5. a source of pressure for directing or controlling behavior.

A major problem in studying organizational climate is the identification and measurement of its salient dimensions. A corollary issue is the sensitivity and generality of a given set of dimension measures across a variety of organizational environments and conditions.

Extensive theoretical-conceptual work and rigorous empirical research are required to develop a set of organizational-climate measures that meet the following criteria:

1. <u>High Reliability</u> -- Measures exhibit dimensional purity and high internal consistency.

2. <u>Adequate Validity</u> -- Measures demonstrate satisfactory relationships with important criteria of human performance, organizational effectiveness, health and well-being, or individual satisfaction and fulfillment.

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3. Generality -- Measures have been verified by replication across a variety of work settings and organizational environments.

4. Utility -- Measures are easy to administer, are acceptable to the respondent, engender a sense of involvement and willing participation, and are not excessively time consuming to administer and score.

The senior author has accomplished formative work toward integrating previous research and identifying a coherent set of organizational-climate dimensions for research and development (R&D) work environments to serve as a framework for developing organizational-climate measures. An early effort included the formulation of a theoretical-conceptual framework (doctoral research) and associated exploratory investigations involving approximately 1000 U.S. Air Force scientist-engineers and nearly 600 U.S. Air Force technical training students[1-4] (Secrist 1975). Subsequently, the theoretical-conceptual foundation was updated, and a refined set of organizational-climate dimensions and a model of human and organizational effectiveness were developed[5] (Secrist 1983). An advanced set of measures is now being developed to provide a means of assessing the refined dimensions. These measures are being designed to meet the reliability, validity, generality, and utility criteria listed above. Preliminary work on this effort was recently completed (Secrist et al., 1983).

PURPOSE

The purpose of the present study was to determine the extent of conceptual similarity among a sample of organizational variables and to ascertain if an organizational-climate taxonomy, developed and refined from over a decade of theoretical and empirical work[5] (Secrist 1975), would be useful in classifying and assessing organizational-climate variables. The conceptual similarity among variables and the utility of the taxonomy were evaluated against two standards:

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[1]G. E. Secrist. Organizational research and organizational development. (Briefing/technical presentation) Personnel Research Division, U.S. Air Force Human Resources Laboratory, Lackland AFB, Tex., Sep 1973.

[2]G. E. Secrist. Scientist-engineer performance and satisfaction: A multivariate total spectrum assessment. Manuscript submitted for publication, 1983.

[3]G. E. Secrist and G. Germadnik. The development of dimensionally pure measures of organizational climate. (Briefing report/unpublished research) Personnel Research Division, U.S. Air Force Human Resources Laboratory, Lackland AFB, Tex., 1973.

[4]G. E. Secrist and T. M. Longridge. New training research program. (Briefing/technical presentation/proposal) U.S. Air Force School of Applied Aerospace Sciences, Sheppard AFB, Tex., June 1975.

[5]G. E. Secrist. Scientific excellence through enlightened management and healthy organizational environments. Book submitted for publication, 1982.

1. Extent of agreement among judges (including interjudge reliability) in classifying organizational variables into the taxonomy's climate dimension categories.

2. Degree to which the climate dimension categories were able to account for the organizational variables found in a sample of the research literature.

METHOD

Variables

A seven-dimension taxonomy was used as a basis for classifying organizational-climate variables found in contemporary research literature. The taxonomy evolved from previous work of the senior author and an integration of organizational-climate research literature over the past two decades.[5] Table 1 identifies and describes the seven dimensions of the taxonomy.

Twenty-nine organization-research investigations were evaluated as part of the classification task. This pool of studies yielded 210 organizational variables. The initial data base was screened to eliminate exploratory investigations and studies primarily concerned with factors other than organizational variables (e.g., psychological and job/task factors). The resultant data base comprised 14 studies (conducted within the last 15 years) and 105 organizational variables (Table 2).

Judges

Thirteen judges independently evaluated the 105 organizational variables contained in Table 2 and classified them according to one of the seven organizational-climate categories listed in Table 1. The judges, nine research scientist-engineers and four research assistants or technicians, were involved in military biotechnology R&D. One of the research technicians was disqualified because of admitted preoccupation and inattention during the classification task, so 12 judges made up our final sample. Their education levels varied from a minimum of three years of college (technician) to Ph.D. or M.D. degrees (research scientists).

Procedure

Eight boxes were placed on a table in a small, quiet room. A separate box was identified for each of the seven organizational-climate dimension categories described in Table 1. A description of each category (see Table 1) was appended to its corresponding box to define the dimension. The eighth box was provided for variables that could not be unequivocally classified into one of these organizational-climate dimension categories.

TABLE 1. ORGANIZATIONAL-CLIMATE TAXONOMY

Dimension	Dimension Category	Description
I	Organization vs Individual Control	Extent to which behavior is controlled by the organization vis-a-vis the individual; related to the degree of organizational control, structure, or stringency of policies, rules, and regulations vis-a-vis self-control, flexibility, independence, or autonomy.
II	Organizational Stress	Quantity and type of stress induced by the organization, including role conflict, role ambiguity, interpersonal friction, management pressure, and other sources of dysfunctional stress within the work environment.
III	Quality of Inter-personal Relations	Quality and supportiveness of relations among peers, subordinates, superiors, work groups, interfacing subunits, and organizations; degree of work-group (team) cohesiveness and solidarity.
IV	Standards and Goals	Degree of challenge of job goals, objectives, and work assignments; level of difficulty and clarity of goals, standards, and job/task functions.
V	Communications Effectiveness	Extent to which organizational and interpersonal communications are accurate, undistorted, unbiased, and complete; degree to which open, honest, easy two-way information exchange exists between organization members and the leadership or management.
VI	Organizational Incentive and Reward System	Quality, quantity, and equity of rewards or incentives; also, extent to which rewards are contingent on level of performance and contribution to the organization.
VII	Physical Environment	Quality, adequacy, and supportiveness of the immediate physical work space or facilities; extent to which the physical-architectural work space conforms to individual preferences; and degree to which the individual is free to modify or adapt the immediate physical-architectural work space to suit personal characteristics and job requirements.

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TABLE 2.   DATA BASE FOR JUDGMENTAL CLASSIFICATION TASK

Reference Study	No. of Variables	Examples of Variables	
Campbell et al. (1970)	4	Consideration, warmth, support Degree of structure	Individual autonomy Reward orientation
Campbell and Beaty*	9	Commitment and involvement Decision centralization Feedback and reward mechanisms Pressure	Security Structure Support for innovation and autonomy Training emphasis Warmth
Dieterly and Schneider (1974)	4	Consideration Individual autonomy	Position structure Reward orientation
Franklin (1975)	8	Communications flow Decision-making practices Goal emphasis Human resources primary	Motivational conditions Supervisory support Team building Work facilitation
House and Rizzo (1972)	8	Adequacy of authority Adequacy of planning Conflict and inconsistency Emphasis on ability and performance	Formalization Goal consensus and clarity Job pressure Tolerance of error
Jones and James (1979)	6	Conflict and ambiguity Job challenge and importance Job standards	Leader facilitation and support Professional and organizational esprit Work-group cooperation and warmth
LaFollette and Sims (1975)	6	Affect toward management Affect toward others Job pressure and standards	Openness of upward communications Policy and promotion clarity Risk in decision making
Likert (1967)	6	Communications Control Decision making	Goal setting Leadership Motivation

*J. P. Campbell and E. E. Beaty. Organizational climate: Its measurement and relationship to workgroup performance. Paper presented at the meeting of the American Psychological Association, Washington, D.C., Sep 1971.

TABLE 2. (Continued)

Reference Study	No. of Variables	Examples of Variables	
Litwin and Stringer (1968)	9	Conflict Identity Responsibility Reward Risk	Standards Structure Support Warmth

Meyer (1968)	6	Friendly team
		  spirit
		Constraining
		  conformity
			Organizational
			  clarity
			Responsibility
			Rewards
			Standards

Schneider (1975)	5	Autonomy Equitable reward for effort Innovation orientation	Personal development Support
Schneider and Bartlett (1968)	6	Concern Conflict Independence	Satisfaction Structure Support

Sells*	24	Autonomy
		Confidence and
		  trust--up
		Confidence and
		  trust--down
		Cooperation
		Efficiency
		Emphasis on
		  efficiency
		Feedback on the job
		Friendliness
		Goal emphasis
		Interaction
		  facilitation
		Job challenge
		Job performance
			Job pressure
			Job standards
			Job structure
			Job variety
			Leader support
			Leadership efficiency
			Opportunity to deal
			  with others
			Pride
			Role ambiguity
			Role conflict
			Upward interaction
			Work facilitation

Zultowski et al. (1978)	4	Feedback and
		  evaluation
		Goal clarity
			Participation in
			  goal setting
			Subordinate freedom

Total: 105

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*S. B. Sells. Work environment questionnaire. Texas Christian University, Fort Worth, Tex., 1972-73.

A separate 3- x 5-inch index card defined each organizational variable obtained from the sample of 14 research investigations. The 13 judges independently evaluated these variables, classifying them according to one of the seven dimension categories listed in Table 1 (or putting the card in the eighth box if none of the dimension categories were appropriate). Care was taken to ensure that each judge understood the description of each dimension category; the nature of the sorting (classification) task; and the need for unhurried, reflective judgments.

Data Analyses and Evaluation

Several statistics were developed to evaluate the conceptual similarity of the organizational variables and the adequacy of the seven-dimension taxonomy in accounting for the sample of variables found in contemporary organizational research literature.

1. The Agreement Index (AI) is a measure of interjudge reliability, obtained as the proportion of organizational variables on which each pair of judges agreed. AI_{ij} is the proportion of the organizational variables that judges i and j classified as belonging to the same organizational-climate dimensions. The AIs associated with any one judge are independent and can be tested, using a chi-square test, to see if they differ significantly.

2. Maximum Agreement (MA) is another descriptive measure of agreement between judges. It is the maximum number of judges who agreed on each variable; i.e., who classified variable k in the same organizational-climate dimension category. The frequency distribution of these MAs gives the extent of agreement between judges over the set of organizational variables. This measure, since it shows the degree of agreement between judges for a particular variable, can also be considered as an index of the reliability for that variable.

3. The Coefficient of Agreement (CA) is an index used to further evaluate the organizational-climate taxonomy. The CA was derived by ranking the eight categories (seven defined climate dimensions plus one miscellaneous) from "least" to "most frequently" chosen by the 12 judges as the most applicable dimension for each organizational variable; the order of tied dimensions was immaterial. The rank of the dimension was squared and then multiplied by the number of judges who assigned that variable to the dimension, and the products were summed over the eight dimensions. Finally, the index was standardized to the range of 0 to 1 by subtracting the minimum possible value and dividing by the difference between the maximum and minimum values.

The CA for variable k was calculated as

$$CA_k = \sum_{i=1}^{8} R_{ik}^2 \cdot N_{ik}$$

where R_{ik} is the rank of dimension i, ranked by the number of judges classifying the variable k as belonging to the dimension i,

and N_{ik} is the number of judges classifying the variable k as belonging to dimension i.

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The CA differs from the MA in that the CA gives weight to the diversity of other dimensions chosen by the judges. For example, if 6 of 12 judges classified a variable into one dimension category and the remaining 6 judges classified it into a second category, the CA would be as high as that of a variable which 9 judges classified into one dimension category and the remaining 3 judges classified into three different categories. Thus, the CA statistic could give greater weight to a variable that is classified into two dimensions than to a variable that is classified into more than two dimensions, even though a larger number of judges might agree on a single category.

RESULTS

The principal analyses concentrated on 105 organizational variables obtained from 14 studies. The Agreement Index was calculated for each pair of the 12 judges. These indices ranged from .324 (of 105 variables, 34 were identically classified) to .619 (of 105 variables, 65 were identically classified). The 12 sets of 11 AIs associated with each judge were tested to see if they differed significantly. Only three sets (involving judges 1, 5, and 9) exhibited AI differences that reached the .05 level of significance. Since judge 2 tended to have lower AI values, and had the lowest AI with judges 1 and 5, the set for judge 2 was omitted. When the remaining 11 sets (10 AI values each) were tested, none of the sets had an AI difference that reached the .05 level of significance. The overall average AI value for the 11 judges, omitting judge 2, was .47. These results are summarized in Table 3, showing the average AI for each judge, both with and without judge 2 included.

TABLE 3. INTERJUDGE RELIABILITY ANALYSIS

All Judges			Judge 2 Omitted		
Judge	Mean AI[a]	Range	Judge	Mean AI[a]	Range
1[b]	.50	.35-.62	1	.52	.41-.62
2	.39	.32-.44	2		
3	.42	.32-.51	3	.43	.37-.51
4	.45	.33-.55	4	.45	.33-.55
5[b]	.48	.38-.57	5	.49	.39-.57
6	.44	.39-.54	6	.44	.39-.54
7	.48	.43-.53	7	.48	.43-.53
8	.49	.40-.55	8	.49	.41-.55
9[b]	.48	.37-.55	9	.49	.37-.55
10	.42	.33-.55	10	.42	.33-.50
11	.50	.42-.62	11	.51	.42-.62
12	.49	.41-.57	12	.49	.43-.57

[a]AI = Proportion of organizational variables classified identically by two judges (mean AI is the average classification agreement between one judge and each of the other judges across all 105 variables).
[b]Chi-square test for differences in the AI between one judge and each of the other judges, significant at the .05 level.

A frequency distribution indicating the number of organizational-climate variables (105 total) that were classified by the specified maximum number of judges into the same organizational-climate dimension category (maximum agreement for the variable) is depicted in Figure 1. It can be seen from Figure 1 that 10 or more judges agreed on the classification of 32 variables (30%) and 8 or more agreed on the classification of 49 (47%). The average maximum number of judges agreeing on the classification of variables within the organizational-climate taxonomy was 7.4. With 12 judges and eight categories (seven dimensions plus the miscellaneous category), the minimum possible number of judges in agreement on the classification of any single variable is two. None of the variables were agreed on by only two judges, and only three variables had just three judges agreeing.
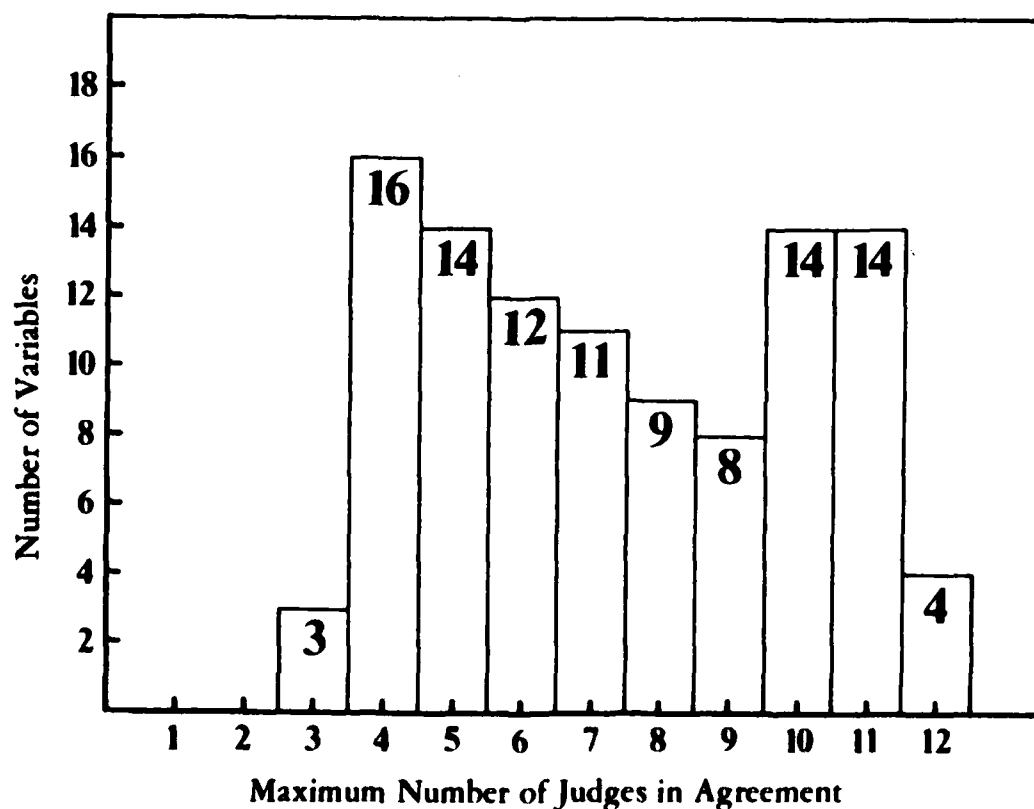

Figure 1. Maximum number of judges agreeing on the classification of 105 variables (number of variables classified in the same way by indicated number of judges).

The cumulative percent of variables as a function of the Coefficient of Agreement is plotted in Figure 2. Of the 105 organizational variables, 50% have a CA value of .71 or more (agreement by seven or more judges). A CA value of .89 or more indicates classification agreement by 10 or more judges.
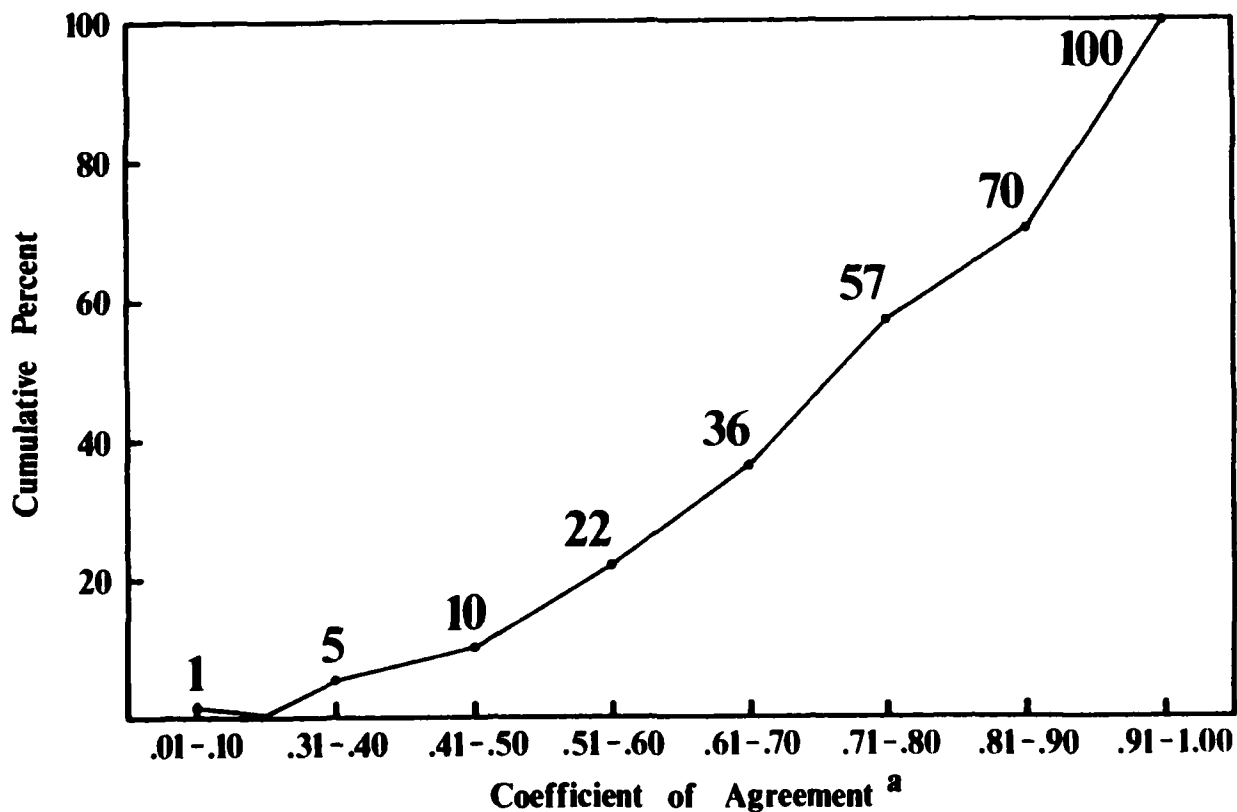
Figure 2. The Coefficient of Agreement (CA), depicting the extent of agreement among judges in classifying 105 variables, is used as an index of reliability.

Figure 3 shows the percent of variables classified in each organizational-climate dimension out of the 72 variables reliably classified. The criterion of reliable classification was agreement of 6 or more judges. Of the 105 variables, 33 did not have classification agreement by 6 or more judges; these are not reflected in Figure 3. With 12 judges, one variable could have been "reliably classified" in two different dimensions; however, no variable was classified into two separate dimensions, each by 6 judges. Therefore, no variable was tallied more than one time in Figure 3. Also, no variables were reliably classified into dimension VII (Physical Environment) nor into the miscellaneous category.
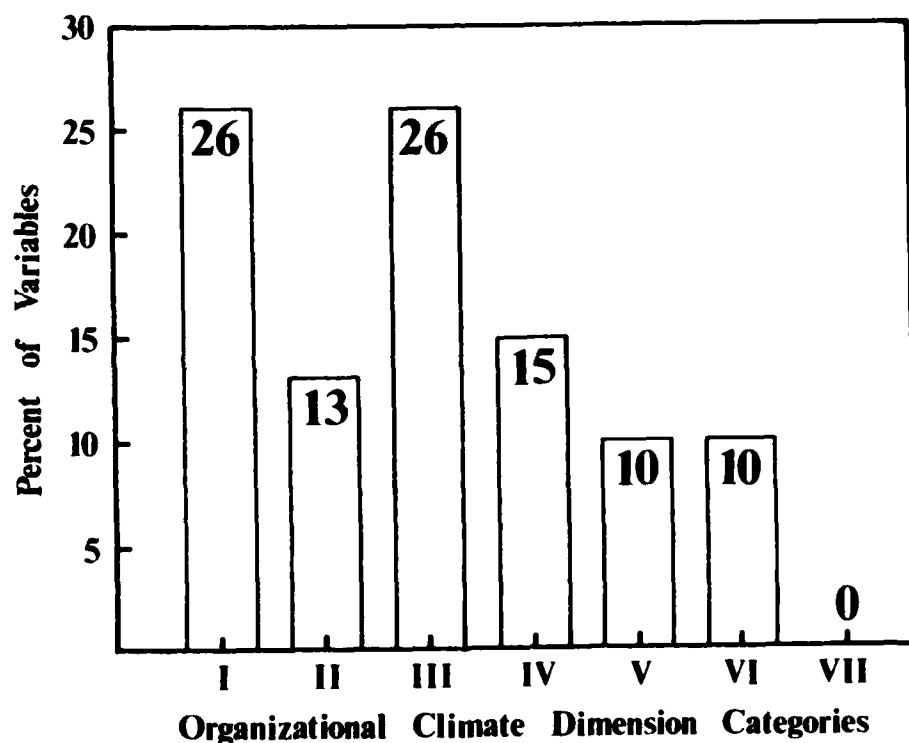

Figure 3. Percent of variables classified in each organizational-climate dimension category of the 72 variables reliably classified (6 or more judges agreed on classification).

DISCUSSION

This study was conducted to determine the extent of conceptual similarity among 105 organizational variables taken from the research literature covering the last 15 years, and the adequacy of a seven-dimension organizational-climate taxonomy to account for these variables. Conceptual similarity and the utility of the taxonomy were ascertained by having 12 judges independently classify the organizational variables.

Conceptual similarity is important because it suggests the dimensionality and generality of different organizational environments. Hence. it is useful in developing and validating generic models and measures of organizational climate. Two general criteria were used to evaluate the conceptual similarity among the organizational variables in this investigation: (a) the extent to which judges agreed on the classification of the variables, and (b) the adequacy of an organizational-climate dimension taxonomy to handle these variables. The results indicate substantial agreement among judges in classifying organizational variables and that the classification taxonomy is a promising framework for studying the dimensionality of organizational climate across a variety of occupational settings.

Congruence in the conceptual similarity of organizational variables was illustrated principally by two findings.

1. An average of 7 of the 12 judges independently agreed on the classification of the 105 variables used; 8 or more agreed on nearly 50% of the classifications, and 10 or more agreed on 30%.

2. The proportion of the 105 variables on which there was complete classification agreement, averaged across all possible pairs of judges, was nearly 50% (overall average Agreement Index of .47).

The findings reflect rather good agreement among judges on the conceptual similarity of variables found in a sample of past empirical work. The findings also suggest that the organizational climate of a variety of work settings can be described by relatively few dimensions (less than 10).

The adequacy of the organizational-climate taxonomy to account for organizational variables found in contemporary research can be inferred primarily from two findings.

1. Nearly 70% of the variables were classified within the framework of the taxonomy by a criterion of agreement of 6 or more of the 12 judges.

2. The Coefficient of Agreement statistic, used as an index of classification reliability, further supports the utility of the organizational-climate dimension taxonomy. The CA among judges was .71 or greater in classifying 50% of the 105 variables according to the taxonomy.

A general indication of the extent of research across the organizational-climate dimensions is suggested by the number of variables reliably classified into each dimension category. Apparently more research has been conducted on the climate dimensions concerned with organizational control and the quality of interpersonal relations than on any other; much less research has involved the dimensions pertaining to the organizational reward system, communications effectiveness, and the physical environment.

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